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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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Office Action Summary	Application No. 10/579,565	Applicant(s) HYDE ET AL.	
	Examiner Hai C. Pham	Art Unit 2861	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 27 February 2009.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 17-29,31 and 32 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 17-29,31 and 32 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 12 May 2006 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) and the Intellectual Property and High Technology Technical Amendments Act of 2002 do not apply when the reference is a U.S. patent resulting directly or indirectly from an international application filed before November 29, 2000. Therefore, the prior art date of the reference is determined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

2. Claims 23, 24, 31 and 32 are rejected under 35 U.S.C. 102(e) as being anticipated by Figov et al. (US 6,989,854).

Regarding claims 31, 32: Figov et al. discloses a laser marking and printing system configured to mark a substrate, the system comprising a laser light emitting source (array of IR laser diodes 32), a substrate formed of at least one of paper, a sheet form, synthetic paper and resin film (printing plate 25 or 300 being of a sheet form having an oleophilic substrate made of polyester and an infra-red radiation absorbing layer 326), means 24 for displacing said substrate to said laser light source 32 (the

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printing plate 300 being mounted on the drum 24, which displaces the printing plate relative to the array of IR laser diodes 32), wherein the displacing means 24 is configured to expose a surface of the substrate to light from the laser light emitting source 32 (Fig. 3), and the exposed surface is sufficiently sensitive to light from the laser light emitting source that, when exposed, energy is absorbed at least one point of said substrate, whereby a reaction occurs which marks the exposed surface (the printing plate 300 having the layer 326 sensitive to the infra-red light emitted by the array of IR laser diodes 32, which expose the printing plate 330 to form a mark on the layer 326 by ablation) (col. 13, lines 1-19), and means for transmitting light from said laser light emitting source to the exposed surface (the optical fibers 33 and the lens assembly 35 transmit light from the array of IR laser diodes 32 to the printing plate 25) (Fig. 3), wherein said laser light emitting source 32 comprises an array of lasers 32A-32E arranged for simultaneous multi-point marking 39A-39E (Fig. 3), and said array of lasers 32 comprise semi-conductor laser diodes configured to emit light in at least one of the infra red and near infra red spectrums (the light emitting source being an array of infra red laser diodes 32A-32E) (col. 7, line 33 to col. 8, line 24).

Regarding claim 23: Figov et al. further teaches at least one optical element, i.e. lens assembly 35, being located between said lasers 32A-32E and said substrate 25 (Fig. 3).

Regarding claim 24: Figov still further teaches at least one optical element incorporates at least one of a single bulk lens, i.e. single telecentric lens assembly 35 (Fig. 3) (col. 7, lines 42-49).

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 17, 19-28, 31 and 32 are rejected under 35 U.S.C. 103(a) as being unpatentable over Manley et al. (EP 0818308) in view of Figov et al.

Regarding claims 31, 32: Manley et al., an acknowledged prior art, discloses a laser marking system configured to mark a substrate, the system comprising a laser light emitting source (semiconductor lasers 8), a substrate formed of at least one of paper, a sheet form, synthetic paper and resin film (printing plate 4 being of a sheet form and having a layer sensitive to the laser irradiation), means 1 for displacing said substrate to said laser light source 32 (the printing plate 4 being mounted on the rotating drum 1, which displaces the printing plate relative to the semiconductor lasers 8 disposed in the print head 5) (Figs. 1 & 2), wherein the displacing means 1 is configured to expose a surface of the substrate to light from the laser light emitting source 8 (Fig. 3), and the exposed surface is sufficiently sensitive to light from the laser light emitting source that, when exposed, energy is absorbed at least one point of said substrate, whereby a reaction occurs which marks the exposed surface (the printing plate 4 has a layer sensitive to the laser irradiation of the laser array 8, which exposes the printing plate 4 to form marks), and means for transmitting light, i.e. optics 10, from said laser

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light emitting source 8 to the exposed surface 4 (Fig. 2), wherein said laser light emitting source 8 comprises an array of lasers arranged for simultaneous multi-point marking (the semiconductor lasers 8 having at least 64 light emitting elements, which simultaneously form corresponding marks on the printing plate 4) (Fig. 1) (p. 3, lines 30-31).

Manley et al. further teaches using the array of laser 8 of a suitable wavelength depending on the sensitivity of the printing plate material (p. 3, lines 45-47), but fails to teach the laser array emitting laser beam in the infra red or near infra red region.

However, it is old and well known in the art to use suitable laser light source emitting laser beam that is sensitive to the exposed medium as evidenced by Figov et al. where an infra red laser diode array is used to expose the printing plate 25 having a layer that absorbs light in the same spectrum region.

Since Manley et al. suggests selecting the proper laser diode having a wavelength compatible with the sensitivity of the printing plate material, it would have been obvious at the time the invention was made to a person having ordinary skill in the art to modify the device of Manley et al. with the teaching of Figov et al. by incorporating infra red laser array for exposing the printing plate since the sensitivity of both the recording medium and the radiation source should be compatible for obtaining an optimum result.

Manley et al. further teaches:

- Regarding claim 17: a heater, i.e. laser 12, configured to heat said exposed surface prior to the exposed surface being exposed to the laser light (the laser

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12 impinges the medium 4 before the medium is being exposed by the beams emitted from the lasers 8) (p. 3, lines 49-52) (p. 4, lines 1-3).

- Regarding claim 19: the heater comprises a light emitter (laser 12).
- Regarding claim 20: another light emitter, i.e. laser 12, positioned adjacent to said laser array 8 and adapted to supply sufficient light so as to bring said substrate close to the marking threshold, wherein while said array of lasers emits light, and the exposed surface passes the marking threshold due to the combined effect of said laser array and said other light emitter (the combined power of the laser array 8 and the second laser 12 is sufficient to overcome the power threshold necessary to mark the printing plate) (p. 3, lines 36-42) (p. 4, lines 22-28).
- Regarding claim 21: said light emitter 12 emits light to said exposed surface 4 at a point substantially coincident with the point of light from the laser light emitting source 8 (p. 3, lines 45-46).
- Regarding claim 22: means for varying the energy supplied to each point of the exposed surface by varying over time at least one of the pulse and amplitude of the transmitted light, whereby variation in mark pigmentation may be achieved (the modulator 9 can be an amplitude modulator) (p. 3, lines 26-29 & 32-35).
- Regarding claim 23: at least one optical element 10 being located between said lasers 8 and said substrate 4 (Fig. 2).

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- Regarding claim 24: at least one optical element incorporates at least one of a single bulk lens, i.e. single lens assembly 10 (Fig. 2) (col. 7, lines 42-49).
- Regarding claim 25: a plurality of radiation outputs, plural laser beams emitted from the laser array 8, and means for switching the path of radiation to selected outputs, i.e. the modulator 9 is an acousto-optic modulator, which diffracts the laser beams in different paths of radiation of zero and first ordered diffracted beams that can be selectively chosen (p. 3, lines 23-26).
- Regarding claim 26: means for directing the radiation in a plurality of directions, i.e. using either an acousto-optic modulator or an electro-optic modulator 9 (p. 3, lines 23-26 & 34-35).
- Regarding claims 27 & 28: at least one of a mechanically displaceable optical element (i.e. the optics 9 is mounted on the rail 6 and displaced by the motor 7), an electronically switchable diffractive element (i.e. acousto-optic modulator or electro-optic modulator 9), and a branched wave guide.

5. Claim 18 is rejected under 35 U.S.C. 103(a) as being unpatentable over Manley et al. in view of Figov et al., as applied to claim 17 above, and further in view of De Bock et al. (US 5,893,018).

Manley et al. in view of Figov et al. discloses all the basic limitations of the claimed invention including the drive electronics (Manley et al. controller 11 and light modulator 9 for driving the laser array 8) but fails to teach the heat exchanger.

De Bock et al. teaches a means for heating the toner image on the transfer member includes a pre-heating roller and a pre-cooler roller, the pre-heating roller and the pre-cooler roller acting as a heat exchanger (col. 13, lines 15-43).

It would have been obvious at the time the invention was made to a person having ordinary skill in the art to modify the device of Manley et al. to include the teaching of De Bock et al. by incorporating the heat exchanger in the form of a pre-heating and pre-cooling rollers in order to reduce energy loss as suggested by De Bock et al.

6. Claim 29 is rejected under 35 U.S.C. 103(a) as being unpatentable over Manley et al. in view of Figov et al., as applied to claim 16 above, and further in view of Goldberg (US 4,383,261).

Manley et al. in view of Figov et al. discloses all the basic limitations of the claimed invention except for the array lasers being configured to be pulsed.

Golberg teaches a method for laser recording to record an image on the recording medium using a semiconductor laser array 60 while dynamically pre-heat the moving recording medium by irradiating the recording medium with another laser 67 at the same spot as that of the laser array 60, the laser beams emitted from the laser 60 being modulated into light pulses (Fig. 5).

It would have been obvious at the time the invention was made to a person having ordinary skill in the art to modify the device of Manley et al. to include the

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teaching of Golberg by modulating the laser beam into light pulses such that the beam spot can be controlled to the desired spot and resolution.

Response to Arguments

7. Applicant's arguments filed 02/27/09 have been fully considered but they are not persuasive.

8. Applicant argues that “[t]he system of Figov uses ink for printing” and that “[t]he ink is placed on a drum using a laser, and the ink is transferred from the drum to a recording medium”. The examiner respectfully does not fully agree with applicant’s statement with regard to the system of Figov. The system of Figov is basically a laser marking and printing system using an array of IR laser diodes 32 to initially expose and ablate the radiation absorbing layer 326 of the printing plate 300 at the multiple points of irradiation corresponding to the image data such that the ablated portions of the radiation-absorbing layer 326 (and not the drum as stated by the Applicant) can hold inks, which are deposited on the ablated printing plate using an ink roller, and the ink is then transferred from the ablated radiation absorbing layer 326 of the printing plate 300 to a recording medium to form the final image (col. 5, lines 26-33). The laser marking system as claimed in claims 31 and 32 does not clearly stipulate that the exposed surface having the multi-point marking constitutes the “final” product, and as such the very first step of exposing the printing plate with an array of IR laser diodes to mark the printing plate by ablation as taught by Figov clearly reads on the claim limitations as recited in claims 31 and 32.

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Applicant further argues with regard to claims 31 and 32 that “no combination of these [cited] references, [i.e. Manley et al. in view of Figov],discloses at least those features disclosed with regard to Figov alone”, but does not clearly indicate which claimed features being not disclosed by the cited references. However, as it is clearly shown in paragraph 4 above, Manley et al. in view of Figov teaches all the claimed features recited in both claims 31 and 32. Manley et al. teaches a laser marking system to include a laser light emitting source (semiconductor lasers 8), a substrate formed of at least one of paper, a sheet form, synthetic paper and resin film (printing plate 4 being of a sheet form and having a layer sensitive to the laser irradiation), means for displacing said substrate to said laser light source (rotating drum 1 for displacing the printing plate 4 relative to the semiconductor lasers 8 disposed in the print head 5) (Figs. 1 & 2), wherein the displacing means is configured to expose a surface of the substrate to light from the laser light emitting source (the rotating drum displaces the printing plate 4 past the imaging station formed by the print head 5) (Fig. 3), and the exposed surface is sufficiently sensitive to light from the laser light emitting source that, when exposed, energy is absorbed at least one point of said substrate, whereby a reaction occurs which marks the exposed surface (the printing plate 4 has a layer sensitive to the laser irradiation of the laser array 8, which exposes the printing plate 4 to form marks), and means for transmitting light from said laser light emitting source to the exposed surface (the optics 10 transmit light from the lasers 8 to the printing plate 4) (Fig. 2), wherein said laser light emitting source comprises an array of lasers arranged for simultaneous multi-point marking (the semiconductor lasers 8 having at least 64 light

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emitting elements, which simultaneously form corresponding marks on the printing plate 4) (Fig. 1) (p. 3, lines 30-31). However, Manley et al. fails to teach the laser array emitting laser beam in the infra red or near infra red region. Regardless, Figov et al. teaches using an infra red laser diode array expose the printing plate 25, which has a layer that absorbs light in the same spectrum region.

Conclusion

9. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Hai C. Pham whose telephone number is (571) 272-2260. The examiner can normally be reached on M-F 8:30AM - 5:30PM.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Matthew Luu can be reached on (571) 272-7663. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Hai C Pham/
Primary Examiner, Art Unit 2861
May 5, 2009